

Understanding Earnings Quality

Patricia M. Dechow



Defining Earnings Quality



HIGH QUALITY EARNINGS Reflect the economics of the business Are sustainable (are a good indicator for the future)

LOW QUALITY EARNINGS Do not reflect the economics of the business Have been manipulated/contain errors Are not sustainable (are a poor indicator for the future)

Understanding the factors that cause earnings quality to differ is a key research area in accounting.

 Important for investing, auditing, SEC in monitoring and regulating, banks providing loans, etc.

Operationalizing Earnings Quality

Concept of earnings persistence

• Earnings_{t+1} = α + β Earnings_t + ε

β closer to 1 => earnings are more sustainable



Factors that Affect Earnings Quality

Underlying Economics







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I will pay you \$1.00 for that delicious cup of lemonade





Cup and straw= 0.05 Lemons = 0.15 Sugar = 0.10 Total = 0.30

LEMON ADE





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LEMONADE STAND

Domino

Earnings Quality

Milli starts a business

Cups and straws= 1.00

Lemons = 1.00

Box of sugar = 2.00

Total Costs = 4.00





LEMONADE STAND

Domi



I will pay you \$1.00 for that lemon sugar drink

> Cup and straws= 1.00 Lemons = 1.00 Box of sugar = 2.00 Total = 4.00









- **Milli's Earnings**
- (on a cash basis)

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- Revenue: = 0
- Expenses: = \$ -4.00
- Cash earnings = -4.00

LEMONADE STAND



Cup and straws= 1.00 Lemons = 1.00 Box of sugar = 2.00 Total = 4.00

Comparison of CASH FLOWS

Milli's







Similar transaction occurred but cash-based performance looks very different



Accrual Accounting



THE TIMING OF CASH FLOW RECEIPTS AND PAYMENTS IS NOT IMPORTANT

Focus on underlying economics





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Comparison of ACCRUAL EARNINGS

Milli's

Chris'





Reconciling Earnings to Cash Flows

Milli's

Chris



Earnings = cash flows + <u>accruals</u> Earnings = cash flows + <u>accruals</u> 0.70 = \$-4.00 + \$4.700.70 = 0.70 + 0Earnings are the same eve ACCRUALS = +1.003.70 cash flows are very dif \$4.70 0000000 Domin CMarshall

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Milli's accruals







Inventory



High inventory: Milli anticipates future sales!



Obsolete inventory Nobody wants to buy lemonade



Comparison of Business Models



Chris'



Has Cash!! Simple business



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0.70 cash

Milli's



Accruals are indicators of growth in RISKY investments

Accruals estimate these investments but they could be wrong



Comparison of Earnings Quality





Operationalizing Earnings Quality

- Empirical evidence earnings persistence
- Earnings_{t+1} = α + β Earnings_t + ϵ





Operationalizing Earnings Quality

Concept of earnings persistence







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- Philosophical Question:
- What is objective of accrual accounting?







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- What is objective of accrual accounting?
- 1. Economic perspective:
 - Investors care about firm value. The objective is to measure the value of assets and liabilities.
- 2. Performance evaluation
 - Investors want to know what management did this period. The objective is to measure how much <u>income</u> was generated this period.



Economic Perspective



Assets_t – Liabilities_t = Shareholders' Equity_t Measure the value



Economic Perspective





Assets_{t+1} – Liabilities_{t+1} = Shareholders' Equity_{t+1} Measure the value









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Operationalizing Earnings Quality

Concept of earnings persistence

• Earnings_{t+1} = α + β Earnings_t + ε





Accounting Rules and Standards



Balance Sheet Perspective

Goodwill: Fair value – no amortization Marketable securities: Fair Value Impairments of assets: Fair Value **Capital Leases: Fair Value** Deferred Revenue (Fair Value of Component) Debt – Fair Value Securitization – Fair value Inventory – lower of market or cost



Accounting Rules and Standards



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Transitory gains and losses muddies up earnings




- Philosophical Question:
- What is objective of accrual accounting?

1. Economic perspective:

- Investors care about firm value. The objective is to measure the value of assets and liabilities.
- 2. Performance evaluation (Income Statement perspective):
 - Investors want to know what management did this period. The objective is to measure how much <u>income</u> was generated this period.



























































Performance Evaluation



Accruals alter the timing of cash flow recognition in earnings To be identify firm performance







Operationalizing Earnings Quality

Concept of earnings persistence

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Income Statement Perspective









Income Statement Perspective

Revenue Recognition: *Does not allow the anticipation of future sales* Cost of Goods Sold: match to revenue Depreciation: allocate over time Operating Leases: as paid Software: Capitalize when technological feasibility Deferred Revenue allocate over time





Revenue Recognition: Does no
Cost of Goods Sold: match to r
Depreciation: allocate over tim
Operating Leases: as paidGoodwill: Fair value – no amortization
Marketable securities: Fair ValueOperating Leases: as paid
Software: Capitalize when tech
Deferred Revenue allocate overImpairments of assets: Fair Value
Capital Leases: Fair ValueDeferred Revenue allocate over
Securitization – Fair ValueImpairment pair value





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Securitization – Fair value

Historical Costs on Balance sheet Transitory gains and losses go through income



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ACCRUAL ACCOUNTING TENSION



Income Statement Perspective Balance Sheet Perspective





ACCRUAL ACCOUNTING TENSION



Income Statement Perspective Balance Sheet Perspective

Standard Setters Fund Managers Debt holders (in firms in Financial distress) Academics





ACCRUAL ACCOUNTING TENSION



Income Statement Perspective Balance Sheet Perspective

Management Financial Analysts Investors Media Compensation consultants Auditors School of Busines

Standard Setters Fund Managers Debt holders (in firms in Financial distress) Academics

Operationalizing Earnings Quality

Concept of earnings persistence

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Consequence of moving accrual accounting to a balance sheet focus

- Declining association of stock returns with earnings
- Declining matching role of accruals
- Declining persistence of GAAP earnings



Matching implies a negative correlation between Cash flows and Accruals



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Source: Dechow and Ge (2005) nia







Matching role of accruals has declined



 $+ - + \\TACC_{i,t} = \beta_0 + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + e_{i,t}$





Bushman Lerman and Zhang (2016) California

Accruals Association with Cash Flows



72 R. M. BUSHMAN, A. LERMAN, AND X. F. ZHANG

Newer cohorts (technology) do not have a negative association between cash flows and accruals

FIG. 4.—The adjusted R² from the Dechow model for each wave of newly listed firms. This figure reports the adjusted R² of the Dechow [1994] model for firm-year observations from the successive listing cohorts in each year from 1964 to 2014. All of the firms are divided into



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Bushman Lerman and Zhang (2016) California

Matching role of accruals has declined



+ - + $TACC_{i,t} = \beta_0 + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + e_{i,t}$

Panel B: Coefficients $\beta_1 \beta_2 \beta_3$: $TACC_{i,t} = \beta_0 + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + e_{i,t}$





Bushman Lerman and Zhang (2016) California





Good News: BB still Holds! (replication of Ball and Brown 1968) Data 1971 - 2012



Figure 2

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This replication of Ball & Brown (1968) suggests that their seminal findings of cumulative abnormal stock returns to positive and negative annual earnings surprises remain evident in the past 40 years. The earnings announcement occurs in month 0, and we plot the cumulative abnormal returns over the [-12, 6] month window for firms with positive (negative) annual earnings surprises and for all firms. Our sample is comprised of 165,224 firm-years from 1971 to 2012 that have non-missing earnings, returns, and earnings announcement

Source: Dechow, Sloan, and Zha (2014)

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Good news:



Earnings Announcements Still Informative

b Price residual analysis

a Trading volume analysis



Volume

Price Residual

Source: Dechow, Sloan, and Zha (2014)





Figure 3

The adjusted R^2 of annual cross-sectional price regressions allows us to compare the explanatory power of earnings measures (earnings, earnings before special items, and "street" earnings) versus cash flow measures (CFO, FCF, and total NCF) with respect to stock prices.

Source: Dechow, Sloan, and Zha (2014)



Figure 3

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Source: Dechow, Sloan, and Zha (2014)

Market Solution



- Declining association of stock returns with earnings
- Declining matching role of accruals
- Declining persistence of GAAP earnings

Rise of management guidance Rising use of non-GAAP performance metrics Rising emphasis by management on meeting analysts' non-GAAP EPS expectations




ACCRUAL ACCOUNTING TENSION



Income Statement							
Perspective							

Balance Sheet Perspective

Management Financial Analysts Investors Media Compensation Auditors

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Market's Solution ndard Setters

Fund Managers

ms in Financial distress) mics

Guidance Non-GAAP metrics to aid in understanding

EQ

Voluntary Disclosures













J. Michael Pearson, (started his reign as CEO and COB in 2008)

- Roll-up strategy:
 - Grow by acquiring companies with existing drugs
 - Cut R&D, layoff workers, increase the price of patented drugs

30 Acquisitions during tenure as CEO

 Strategy relies on easy access to capital markets to fund acquisitions







J. Michael Pearson, (started his reign as CEO and COB in 2008)



• Valeant consistently met analysts' expectations





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J. Michael Pearson, (started his reign as CEO and COB in 2008) Strategy works: Stock Price increases **2000 percent**:





By 2015 Pearson had nearly \$3Billion in stock and options



J. Michael Pearson, (started his reign as CEO and COB in 2008)



• Valeant consistently met analysts' expectations



Valeant's Reconciliation



■Amortization and impairments of finite-lived intangible assets and other non-GAAP charges (\$M)

■ Restructuring, integration, acquisition-related and other costs (\$M)

Total adjustments (\$M)



J. Michael Pearson, CEO





But then, questions started being raised about sustainability and ethics of Valeant's strategy:



J. Michael Pearson, CEO



• Price tumbled today it is \$15



Do firms manipulate to consistently meet expectations?

- Tools:
 - Guidance
 - Put in more effort
 - Take real economic actions: "real" earnings management
 - Massage accruals





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Percent of Manipulating firms consistently beat analysts' expectations before and during the manipulation period



Source: Chu, Dechow, Hui, and Wang (2018)

Manipulating firms have **high accruals before** and during manipulation period – consistent with the use of more accounting flexibility





Implications



- Earnings quality and properties of accruals have changed over time:
 - Balance sheet focus combined with conservatism fair values on the downside
 - Conservatism cash basis lack of capitalizing investment costs and so no creation of accruals in technology firms
- Rise of non-GAAP earnings to solve these problems
- Continuing pressure on management to guide and meet expectations



What can we do?











Earnings = Cash Flows + Accruals

COMPUSTAT

Earnings = CFO + Δ WC Accruals + Depreciation + (FOPO)

BIG DATA PROJECT Dechow, Larson, Retesuk (2018) For each firm-year on Compustat go to SEC filings – find the Statement of Cash Flows and determine what is included in FOPO



Data Analysis (Raw Line Item Data)



- Messy but manageable
- 188,132 FOPO lines for 67,839 firm years (2.77 lines per firm year)
- Nearly 40,000 unique line item descriptions
 - Over 2,000 unique ways to describe bad debt expense
 - provision for doubtful accounts, provision for loan losses, provision for losses on accounts receivable, provision for bad debts, bad debt expense, allowance for doubtful accounts, provision for credit losses, provision for doubtful accounts receivable, provision for uncollectible accounts, provision for losses on receivables, provision for bad debt, provision for loan and lease losses, provision for uncollectible accounts receivable, provision for allowance for doubtful accounts, provision for



 Table 5: Descriptive statistics for FOPO*

Categorize into 32 different line items

FOPO*	Description	Avg.	Std.	1^{st}	99 th	Cons	AR_1	Obs
Operating								
Current Assets								
AR	AR provisions and allowances	-0.008	0.017	-0.109	0.011	0.732	0.678	1105.8
Inv	Inv. provisions and allowances	-0.016	0.029	-0.176	0.025	0.585	0.338	278.2
Non-Current Asse								
WDTan	Tangible asset writedowns	-0.028	0.064	-0.430	0.003	0.352	0.157	155.9
WDIntan	Intangible asset writedowns	-0.088	0.150	-0.840	0.000	0.150	0.112	316.7
WDOth	Other/misc. writedowns	-0.045	0.087	-0.502	0.016	0.313	0.207	343.3
OthAst	Other/misc asset adjustments	-0.001	0.022	-0.084	0.101	0.631	0.300	131.9
Current Liabilities								
Wrnty	Warranty provisions	-0.009	0.012	-0.041	0.009	0.746	-	18.5
DefRev	Deferred revenue adjustments	0.009	0.06	-0.241	0.277	0.630	0.200	69.4
Non-Current Liabilities								
Restr	Restructuring charges	-0.020	0.035	-0.194	0.026	0.413	0.108	254.8
Legal	Enviromntl/Litigation charges	-0.011	0.059	-0.221	0.161	0.338	-0.040	44.3
ARO	Asset retirement charges	-0.002	0.012	-0.029	0.02	0.547	-	19.8
NonStock	Deferred non-stock comp.	-0.005	0.021	-0.124	0.042	0.638	0.413	448.2
OthLiab	Other/misc liab. adjustments	-0.001	0.041	-0.150	0.131	0.519	0.215	41.2
Other								
Tax	Tax-related adjustments	0.002	0.044	-0.148	0.236	0.540	0.026	98.3
Bargain	Gain on bargain purchase	0.017	0.025	0.005	0.099	0.027	-	8.9
OthGL	Other gains/losses	0.005	0.062	-0.216	0.347	0.314	0.075	154.3
OthProv	Other provisions	-0.016	0.042	-0.252	0.041	0.579	0.392	145.9
Other	Other charges	-0.001	0.006	-0.029	0.017	0.775	0.349	795.6
OpMisc	Miscellaneous/uncategorized	-0.012	0.053	-0.303	0.159	0.413	0.383	324.8
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Table 5: Descriptive statistics for FOPO*

FOPO*	Description	Avg.	Std.	1 st	99 th	Cons	AR_1	Obs
Financial								
Interest/Dividends	\$							
Amort	Prem/disct amort; interest	-0.011	0.031	-0.197	0.027	0.518	0.505	611.6
Div	Dividends (non-cash)	-0.003	0.011	-0.024	0.011	0.474	-	8.3
Fair Value Adjustments								
DbtExt	Early debt extinguishment	-0.006	0.051	-0.148	0.21	0.180	0.091	195.1
GLFI	Gain/loss on fin. instrument	0.003	0.042	-0.111	0.208	0.300	0.148	103.3
FVAdj	Fair-value adjustment	-0.019	0.198	-1.657	0.174	0.369	0.060	253.4
WDFin	Fin. asset/liab. writedowns	-0.020	0.042	-0.252	0.012	0.212	0.171	111.2
Other								
Curr	Currency-related adjustments	0.000	0.009	-0.036	0.036	0.588	0.000	169.4
Cash	Restricted cash adjustments	0.008	0.024	-0.0 11	0.027	0.438		3.5
FinMisc	Miscellaneous/uncategorized	0.000	0.050	-0.218	0.220	0.498	0.250	100.5
Shareholders' Equity								
Compensation								
EmpStock	Stock-based comp – employee	-0.017	0.030	-0.184	0.003	0.628	0.584	1579.8
TaxStock	Excess tax benefit; stock comp	-0.006	0.015	-0.056	0.022	0.564	0.443	534.4
Other								
OthStock	Expenses paid with stock	-0.029	0.090	-0.639	0.029	0.385	0.385	146.5
MI	Minority interest	-0.001	0.012	-0.045	0.053	0.565	0.514	278.4



Findings so far...



- Many "unusual and infrequent" items are consistently reported by firms
 - E.g., restructuring charges, gains and losses on MS
 - Relate to specific industries (bad debts)
- Persistence and consistency are different aspects of EQ



OBJECTIVE OF DATA BASE



- GIVE RESEARCHERS THE DATA TO
- Better understand the details of specific accruals determine their characteristics
- Develop improved discretionary accrual models
- Develop industry level models
- Develop new approaches to thinking of EQ
- Provide new insights into understanding transitory components in earnings



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THANK YOU!



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